
Putnam VT Research Fund

The fund's portfolio

3/31/23 (Unaudited)

COMMON STOCKS (98.8%)(a)

	Shares	Value
Aerospace and defense (1.8%)		
Boeing Co. (The) ^(NON)	464	\$98,568
Northrop Grumman Corp.	1,075	496,349
Raytheon Technologies Corp.	6,219	609,027
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		1,203,944
Air freight and logistics (0.4%)		
FedEx Corp.	1,297	296,352
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		296,352
Automobiles (1.6%)		
General Motors Co.	2,704	99,183
Tesla, Inc. ^(NON)	4,656	965,934
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		1,065,117
Banks (2.1%)		
Bank of America Corp.	17,263	493,722
Citigroup, Inc.	19,254	902,820
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		1,396,542
Beverages (2.7%)		
Coca-Cola Co. (The)	11,300	700,939
Constellation Brands, Inc. Class A	293	66,186
PepsiCo, Inc.	5,765	1,050,960
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		1,818,085
Biotechnology (1.8%)		
AbbVie, Inc.	2,420	385,675
Alkermes PLC ^(NON)	6,546	184,532
Ascendis Pharma A/S ADR (Denmark) ^(NON)	1,965	210,687
Biogen, Inc. ^(NON)	729	202,684
Regeneron Pharmaceuticals, Inc. ^(NON)	259	212,813
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		1,196,391
Broadline retail (2.9%)		

Amazon.com, Inc. <i>(NON)</i>	18,746	1,936,274
		1,936,274
Building products (0.7%)		
Johnson Controls International PLC	8,401	505,908
		505,908
Capital markets (3.7%)		
Charles Schwab Corp. (The)	10,275	538,205
Goldman Sachs Group, Inc. (The)	2,900	948,619
KKR & Co., Inc.	10,114	531,187
Quilter PLC (United Kingdom)	117,886	122,880
S&P Global, Inc.	976	336,496
		2,477,387
Chemicals (2.3%)		
Corteva, Inc.	5,542	334,238
DuPont de Nemours, Inc.	6,375	457,534
Eastman Chemical Co.	2,233	188,331
Linde PLC	179	63,624
PPG Industries, Inc.	1,612	215,331
Sherwin-Williams Co. (The)	1,324	297,595
		1,556,653
Construction materials (0.4%)		
CRH PLC ADR (Ireland)	4,772	242,752
		242,752
Consumer finance (0.1%)		
Capital One Financial Corp.	767	73,755
		73,755
Consumer staples distribution and retail (2.5%)		
BJ's Wholesale Club Holdings, Inc. <i>(NON)</i>	805	61,236
Costco Wholesale Corp.	797	396,005
Target Corp.	2,263	374,821
Walgreens Boots Alliance, Inc.	2,891	99,971
Walmart, Inc.	5,083	749,488
		1,681,521
Containers and packaging (0.4%)		
Avery Dennison Corp.	918	164,258
Berry Global Group, Inc.	2,136	125,810
		290,068
Electric utilities (2.8%)		

Exelon Corp.	10,313	432,012
NextEra Energy, Inc.	4,465	344,162
NRG Energy, Inc.	25,678	880,499
PG&E Corp. ^(NON)	12,659	204,696
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		1,861,369
Electrical equipment (0.3%)		
Emerson Electric Co.	2,296	200,073
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		200,073
Electronic equipment, instruments, and components (1.4%)		
CDW Corp./DE	3,324	647,814
Vontier Corp.	11,023	301,369
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		949,183
Energy equipment and services (0.5%)		
Diamond Offshore Drilling, Inc. ^(NON)	26,292	316,556
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		316,556
Entertainment (1.3%)		
Netflix, Inc. ^(NON)	1,624	561,060
Sea, Ltd. ADR (Singapore) ^(NON)	1,639	141,855
Spotify Technology SA (Sweden) ^(NON)	1,426	190,542
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		893,457
Financial services (4.0%)		
Apollo Global Management, Inc.	9,395	593,388
Mastercard, Inc. Class A	4,134	1,502,337
Visa, Inc. Class A	2,834	638,954
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		2,734,679
Food products (0.2%)		
McCormick & Co., Inc. (non-voting shares)	1,923	160,013
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		160,013
Ground transportation (1.8%)		
CSX Corp.	6,195	185,478
Hertz Global Holdings, Inc. ^(NON)	7,295	118,836
Union Pacific Corp.	4,378	881,116
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		1,185,430
Health care equipment and supplies (2.4%)		
Abbott Laboratories	2,917	295,375
Becton Dickinson & Co.	1,089	269,571
Boston Scientific Corp. ^(NON)	8,048	402,641

Dexcom, Inc. <i>(NON)</i>	1,654	192,162
GE HealthCare Technologies, Inc. <i>(NON)</i>	567	46,511
IDEXX Laboratories, Inc. <i>(NON)</i>	135	67,511
Intuitive Surgical, Inc. <i>(NON)</i>	1,258	321,381
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		1,595,152
Health care providers and services (4.2%)		
Cigna Corp.	2,848	727,749
Elevance Health, Inc.	219	100,698
Humana, Inc.	505	245,157
McKesson Corp.	1,465	521,613
UnitedHealth Group, Inc.	2,681	1,267,014
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		2,862,231
Hotels, restaurants, and leisure (2.2%)		
Aramark	3,863	138,295
Booking Holdings, Inc. <i>(NON)</i>	242	641,883
Chipotle Mexican Grill, Inc. <i>(NON)</i>	166	283,576
Hilton Worldwide Holdings, Inc.	2,310	325,410
Penn Entertainment, Inc. <i>(NON)</i>	3,898	115,615
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		1,504,779
Household durables (0.9%)		
PulteGroup, Inc.	10,351	603,256
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		603,256
Household products (1.8%)		
Procter & Gamble Co. (The)	8,356	1,242,454
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		1,242,454
Independent power and renewable electricity producers (0.1%)		
Vistra Corp.	2,765	66,360
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		66,360
Industrial conglomerates (0.9%)		
General Electric Co.	1,307	124,949
Honeywell International, Inc.	2,423	463,084
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		588,033
Insurance (2.5%)		
AIA Group, Ltd. (Hong Kong)	29,000	304,714
Assured Guaranty, Ltd.	10,906	548,245
AXA SA (France)	11,697	357,657
Prudential PLC (United Kingdom)	34,081	466,102
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		1,676,718

Interactive media and services (5.5%)

Alphabet, Inc. Class A ^(NON)	23,192	2,405,706
Meta Platforms, Inc. Class A ^(NON)	6,235	1,321,446
		<hr/>
		3,727,152

Life sciences tools and services (2.1%)

Bio-Rad Laboratories, Inc. Class A ^(NON)	577	276,395
Danaher Corp.	1,779	448,379
Illumina, Inc. ^(NON)	214	49,766
Thermo Fisher Scientific, Inc.	1,089	627,667
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		1,402,207

Machinery (1.6%)

Deere & Co.	459	189,512
Ingersoll Rand, Inc.	4,960	288,573
Otis Worldwide Corp.	7,201	607,764
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		1,085,849

Media (0.4%)

Charter Communications, Inc. Class A ^(NON)	675	241,387
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		241,387

Metals and mining (0.5%)

Agnico-Eagle Mines, Ltd. (Canada)	5,166	263,365
Alamos Gold, Inc. Class A (Canada)	7,765	94,966
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		358,331

Multi-utilities (0.3%)

Ameren Corp.	2,713	234,376
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		234,376

Office REITs (0.2%)

Vornado Realty Trust ^(R)	6,720	103,286
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		103,286

Oil, gas, and consumable fuels (5.0%)

BP PLC (United Kingdom)	51,303	324,796
Cenovus Energy, Inc. (Canada)	42,158	735,542
ConocoPhillips	3,436	340,886
Exxon Mobil Corp.	14,488	1,588,754
Shell PLC (United Kingdom)	14,037	401,959
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		3,391,937

Passenger airlines (0.3%)

Southwest Airlines Co.	6,069	197,485
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197,485**Pharmaceuticals (3.6%)**

4Front Ventures Corp. <i>(NON)</i>	252,907	45,144
Eli Lilly and Co.	1,775	609,571
Innoviva, Inc. <i>(NON)</i>	22,040	247,950
Johnson & Johnson	4,123	639,065
Merck & Co., Inc.	6,290	669,193
Pfizer, Inc.	943	38,474
TerrAscend Corp. (Canada) <i>(NON)</i>	4,563	6,936
Zoetis, Inc.	894	148,797

2,405,130**Semiconductors and semiconductor equipment (5.8%)**

Advanced Micro Devices, Inc. <i>(NON)</i>	9,372	918,550
Broadcom, Inc.	1,240	795,510
NVIDIA Corp.	5,530	1,536,068
Qualcomm, Inc.	5,341	681,405

3,931,533**Software (11.3%)**

Intuit, Inc.	1,534	683,903
Microsoft Corp.	14,680	4,232,243
Oracle Corp.	16,847	1,565,423
Salesforce, Inc. <i>(NON)</i>	6,089	1,216,460

7,698,029**Specialized REITs (1.0%)**

American Tower Corp. <i>(R)</i>	956	195,349
Gaming and Leisure Properties, Inc. <i>(R)</i>	8,652	450,423

645,772**Specialty retail (2.8%)**

CarMax, Inc. <i>(NON)(S)</i>	2,512	161,471
Home Depot, Inc. (The)	4,336	1,279,640
O'Reilly Automotive, Inc. <i>(NON)</i>	328	278,465
TJX Cos., Inc. (The)	1,585	124,201
Warby Parker, Inc. Class A <i>(NON)</i>	1,766	18,702

1,862,479**Technology hardware, storage, and peripherals (4.9%)**

Apple, Inc.	20,125	3,318,613
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3,318,613**Textiles, apparel, and luxury goods (0.8%)**

Levi Strauss & Co. Class A	4,018	73,248
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Lululemon Athletica, Inc. (Canada) ^(NON)	319	116,177
Nike, Inc. Class B	2,946	361,297
		550,722
Tobacco (0.2%)		
Altria Group, Inc.	2,745	122,482
		122,482
Trading companies and distributors (0.5%)		
United Rentals, Inc.	919	363,703
		363,703
Wireless telecommunication services (1.3%)		
T-Mobile US, Inc. ^(NON)	6,159	892,070
		892,070
Total common stocks (cost \$52,021,687)		\$66,713,035

SHORT-TERM INVESTMENTS (1.7%)^(a)

		Principal amount/ shares	Value
Putnam Cash Collateral Pool, LLC 5.03% ^(AFF)	Shares	137,148	\$137,148
Putnam Short Term Investment Fund Class P 4.88% ^(AFF)	Shares	903,128	903,128
U.S. Treasury Bills 4.627%, 5/23/23 ^(SEG)		\$100,000	99,363
Total short-term investments (cost \$1,139,622)			\$1,139,639
TOTAL INVESTMENTS			
Total investments (cost \$53,161,309)			\$67,852,674

FORWARD CURRENCY CONTRACTS at 3/31/23 (aggregate face value \$4,386,449) (Unaudited)

Counterparty	Currency	Contract type*	Delivery date	Value	Aggregate face value	Unrealized appreciation/ (depreciation)
Bank of America N.A.						
	British Pound	Sell	6/21/23	\$248,086	\$240,494	\$(7,592)
	Canadian Dollar	Sell	4/19/23	333,557	333,171	(386)
	Danish Krone	Sell	6/21/23	171,056	167,921	(3,135)
	Euro	Sell	6/21/23	180,600	176,910	(3,690)
Barclays Bank PLC						
	British Pound	Sell	6/21/23	153,695	149,005	(4,690)
	Euro	Sell	6/21/23	152,715	149,607	(3,108)
Citibank, N.A.						
	Canadian Dollar	Sell	4/19/23	210,628	210,402	(226)
Goldman Sachs International						
	British Pound	Sell	6/21/23	585,002	566,990	(18,012)
	Euro	Sell	6/21/23	118,512	116,069	(2,443)
JPMorgan Chase Bank N.A.						
	Canadian Dollar	Sell	4/19/23	314,981	314,662	(319)
	Euro	Sell	6/21/23	93,132	91,906	(1,226)
	Singapore Dollar	Sell	5/17/23	133,934	135,663	1,729
Morgan Stanley & Co. International PLC						
	British Pound	Sell	6/21/23	181,493	175,879	(5,614)
	Canadian Dollar	Buy	4/19/23	204,856	202,564	2,292
	Canadian Dollar	Sell	4/19/23	204,856	204,578	(278)
	Euro	Buy	6/21/23	76,466	76,160	306
	Hong Kong Dollar	Sell	5/17/23	165,954	166,519	565
	Swedish Krona	Sell	6/21/23	184,045	184,094	49
NatWest Markets PLC						
	Canadian Dollar	Sell	4/19/23	142,319	142,131	(188)
State Street Bank and Trust Co.						
	British Pound	Sell	6/21/23	178,528	173,037	(5,491)
	Hong Kong Dollar	Sell	5/17/23	118,832	119,228	396
UBS AG						
	Canadian Dollar	Sell	4/19/23	165,779	165,591	(188)
	Euro	Sell	6/21/23	126,463	123,868	(2,595)
Unrealized appreciation						5,337
Unrealized (depreciation)						(59,181)

Total

\$(53,844)

* The exchange currency for all contracts listed is the United States Dollar.

Key to holding's abbreviations

ADR American Depository Receipts: Represents ownership of foreign securities on deposit with a custodian bank.

Notes to the fund's portfolio

Unless noted otherwise, the notes to the fund's portfolio are for the close of the fund's reporting period, which ran from January 1, 2023 through March 31, 2023 (the reporting period). Within the following notes to the portfolio, references to "Putnam Management" represent Putnam Investment Management, LLC, the fund's manager, an indirect wholly-owned subsidiary of Putnam Investments, LLC, references to "ASC 820" represent Accounting Standards Codification 820 *Fair Value Measurements and Disclosures* and references to "OTC", if any, represent over-the-counter.

(a) Percentages indicated are based on net assets of \$67,541,792.

(NON) This security is non-income-producing.

(AFF) Affiliated company. For investments in Putnam Cash Collateral Pool, LLC and Putnam Short Term Investment Fund, the rate quoted in the security description is the annualized 7-day yield of the fund at the close of the reporting period. Transactions during the period with any company which is under common ownership or control were as follows:

Name of affiliate	Fair value as of 12/31/22	Purchase cost	Sale proceeds	Investment income	Shares outstanding and fair value as of 3/31/23
Short-term investments					
Putnam Cash Collateral Pool, LLC*#	\$724,203	\$2,076,163	\$2,663,218	\$9,396	\$137,148
Putnam Short Term Investment Fund**	2,332,410	3,936,886	5,366,168	22,901	903,128
Total Short-term investments	\$3,056,613	\$6,013,049	\$8,029,386	\$32,297	\$1,040,276

* The fund may lend securities, through its agent, to qualified borrowers in order to earn additional income. The loans are collateralized by cash in an amount at least equal to the fair value of the securities loaned. The fair value of securities loaned is determined daily and any additional required collateral is allocated to the fund on the next business day. The remaining maturities of the securities lending transactions are considered overnight and continuous. The risk of borrower default will be borne by the fund's agent; the fund will bear the risk of loss with respect to the investment of the cash collateral. The fund receives cash collateral, which is invested in Putnam Cash Collateral Pool, LLC, a limited liability company managed by an affiliate of Putnam Management. Investments in Putnam Cash Collateral Pool, LLC are valued at its closing net asset value each business day. There are no management fees charged to Putnam Cash Collateral Pool, LLC and there were no realized or unrealized gains or losses during the period.

At the close of the reporting period, the fund received cash collateral of \$137,148 for securities loaned. The rate quoted in the security description is the annualized 7-day yield at the close of the reporting period. At the close of the reporting period, the value of securities loaned amounted to \$141,416.

** Management fees charged to Putnam Short Term Investment Fund have been waived by Putnam Management. There were no realized or unrealized gains or losses during the period.

(SEG) This security, in part or in entirety, was pledged and segregated with the broker to cover margin requirements for futures contracts at the close of the reporting period. Collateral at period end totaled \$69,524.

(R) Real Estate Investment Trust.

(S) This security is on loan, in part or in entirety, at the close of the reporting period.

Unless otherwise noted, the rates quoted in Short-term investments security descriptions represent the weighted average yield to maturity.

The dates shown on debt obligations are the original maturity dates.

Security valuation: Portfolio securities and other investments are valued using policies and procedures adopted by the Board of Trustees. The Trustees have formed a Pricing Committee to oversee the implementation of these procedures and have delegated responsibility for valuing the fund's assets in accordance with these procedures to Putnam Management. Putnam Management has established an internal Valuation Committee that is responsible for making fair value determinations, evaluating the effectiveness of the pricing policies of the fund and reporting to the Pricing Committee.

Investments for which market quotations are readily available are valued at the last reported sales price on their principal exchange, or official closing price for certain markets, and are classified as Level 1 securities under ASC 820. If no sales are reported, as in the case of some securities that are traded OTC, a security is valued at its last reported bid price and is generally categorized as a Level 2 security.

Investments in open-end investment companies (excluding exchange-traded funds), if any, which can be classified as Level 1 or Level 2 securities, are valued based on their net asset value. The net asset value of such investment companies equals the total value of their assets less their liabilities and divided by the number of their outstanding shares.

Market quotations are not considered to be readily available for certain debt obligations (including short-term investments with remaining maturities of 60 days or less) and other investments; such investments are valued on the basis of valuations furnished by an independent pricing service approved by the Trustees or dealers selected by Putnam Management. Such services or dealers determine valuations for normal institutional-size trading units of such securities using methods based on market transactions for comparable securities and various relationships, generally recognized by institutional traders, between securities (which consider such factors as security prices, yields, maturities and ratings). These securities will generally be categorized as Level 2.

Many securities markets and exchanges outside the U.S. close prior to the scheduled close of the New York Stock Exchange and therefore the closing prices for securities in such markets or on such exchanges may not fully reflect events that occur after such close but before the scheduled close of the New York Stock Exchange. Accordingly, on certain days, the fund will fair value certain foreign equity securities taking into account multiple factors including movements in the U.S. securities markets, currency valuations and comparisons to the valuation of American Depository Receipts, exchange-traded funds and futures contracts. The foreign equity securities, which would generally be classified as Level 1 securities, will be transferred to Level 2 of the fair value hierarchy when they are valued at fair value. The number of days on which fair value prices will be used will depend on market activity and it is possible that fair value prices will be used by the fund to a significant extent. At the close of the reporting period, fair value pricing was used for certain foreign securities in the portfolio. Securities quoted in foreign currencies, if any, are translated into U.S. dollars at the current exchange rate.

To the extent a pricing service or dealer is unable to value a security or provides a valuation that Putnam Management does not believe accurately reflects the security's fair value, the security will be valued at fair value by Putnam Management in accordance with policies and procedures approved by the Trustees. Certain investments, including certain restricted and illiquid securities and derivatives, are also valued at fair value following procedures approved

by the Trustees. These valuations consider such factors as significant market or specific security events such as interest rate or credit quality changes, various relationships with other securities, discount rates, U.S. Treasury, U.S. swap and credit yields, index levels, convexity exposures, recovery rates, sales and other multiples and resale restrictions. These securities are classified as Level 2 or as Level 3 depending on the priority of the significant inputs.

To assess the continuing appropriateness of fair valuations, the Valuation Committee reviews and affirms the reasonableness of such valuations on a regular basis after considering all relevant information that is reasonably available. Such valuations and procedures are reviewed periodically by the Trustees. The fair value of securities is generally determined as the amount that the fund could reasonably expect to realize from an orderly disposition of such securities over a reasonable period of time. By its nature, a fair value price is a good faith estimate of the value of a security in a current sale and does not reflect an actual market price, which may be different by a material amount.

Forward currency contracts: The fund buys and sells forward currency contracts, which are agreements between two parties to buy and sell currencies at a set price on a future date. These contracts were used to hedge foreign exchange risk.

The U.S. dollar value of forward currency contracts is determined using current forward currency exchange rates supplied by a quotation service. The fair value of the contract will fluctuate with changes in currency exchange rates. The contract is marked to market daily and the change in fair value is recorded as an unrealized gain or loss. The fund records a realized gain or loss equal to the difference between the value of the contract at the time it was opened and the value at the time it was closed when the contract matures or by delivery of the currency. The fund could be exposed to risk if the value of the currency changes unfavorably, if the counterparties to the contracts are unable to meet the terms of their contracts or if the fund is unable to enter into a closing position.

For the fund's average contract amount on forward currency contracts, see the appropriate table at the end of these footnotes.

Master agreements: The fund is a party to ISDA (International Swaps and Derivatives Association, Inc.) Master Agreements (Master Agreements) with certain counterparties that govern OTC derivative and foreign exchange contracts entered into from time to time. The Master Agreements may contain provisions regarding, among other things, the parties' general obligations, representations, agreements, collateral requirements, events of default and early termination. With respect to certain counterparties, in accordance with the terms of the Master Agreements, collateral posted to the fund is held in a segregated account by the fund's custodian and, with respect to those amounts which can be sold or repledged, is presented in the fund's portfolio.

Collateral pledged by the fund is segregated by the fund's custodian and identified in the fund's portfolio. Collateral can be in the form of cash or debt securities issued by the U.S. Government or related agencies or other securities as agreed to by the fund and the applicable counterparty. Collateral requirements are determined based on the fund's net position with each counterparty.

Termination events applicable to the fund may occur upon a decline in the fund's net assets below a specified threshold over a certain period of time. Termination events applicable to counterparties may occur upon a decline in the counterparty's long-term and short-term credit ratings below a specified level. In each case, upon occurrence, the other party may elect to terminate early and cause settlement of all derivative and foreign exchange contracts outstanding, including the payment of any losses and costs resulting from such early termination, as reasonably determined by the terminating party. Any decision by one or more of the fund's counterparties to elect early termination could impact the fund's future derivative activity.

At the close of the reporting period, the fund had a net liability position of \$54,028 on open derivative contracts subject to the Master Agreements. There was no collateral posted by the fund at period end for these agreements.

ASC 820 establishes a three-level hierarchy for disclosure of fair value measurements. The valuation hierarchy is based upon the transparency of inputs to the valuation of the fund's investments. The three levels are defined as follows:

Level 1: Valuations based on quoted prices for identical securities in active markets.

Level 2: Valuations based on quoted prices in markets that are not active or for which all significant inputs are observable, either directly or indirectly.

Level 3: Valuations based on inputs that are unobservable and significant to the fair value measurement.

The following is a summary of the inputs used to value the fund's net assets as of the close of the reporting period:

	Valuation inputs		
Investments in securities:	Level 1	Level 2	Level 3
Common stocks*:			
Communication services	\$5,754,066	\$—	\$—
Consumer discretionary	7,522,627	—	—
Consumer staples	5,024,555	—	—
Energy	2,981,738	726,755	—
Financials	7,107,728	1,251,353	—
Health care	9,461,111	—	—
Industrials	5,626,777	—	—
Information technology	15,897,358	—	—
Materials	2,447,804	—	—
Real estate	749,058	—	—
Utilities	2,162,105	—	—
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Total common stocks	64,734,927	1,978,108	—
Short-term investments	—	1,139,639	—
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Totals by level	\$64,734,927	\$3,117,747	\$—

	Valuation inputs		
Other financial instruments:	Level 1	Level 2	Level 3
Forward currency contracts	\$—	\$(53,844)	\$—
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Totals by level	\$—	\$(53,844)	\$—

* Common stock classifications are presented at the sector level, which may differ from the fund's portfolio presentation.

The volume of activity for the reporting period for any derivative type that was held at the close of the period is listed below and was based on an average of the holdings of that derivative at the end of each fiscal quarter in the reporting period:

Forward currency contracts (contract amount) \$4,400,000

For additional information regarding the fund please see the fund's most recent annual or semiannual shareholder report filed on the Securities and Exchange Commission's Web site, www.sec.gov, or visit Putnam's Individual Investor Web site at www.putnaminvestments.com